

5. A faint line 6209.3 was seen only over the spot, widened 5.0. This line is in Angström's map, but neither in his nor Burton's catalogue; nor does it appear in the maps of Kirchhoff, Smyth, or Fievez. It was seen in the spectra of Sun-spots, always much widened, in 1884-5-6, at Stonyhurst. It was not seen in that of May 6, 1889. A careful search was made for the line on May 21, but it could not be detected. It reappears in the June spot.

6. A few faint lines were obliterated where they crossed the spot, none of them metallic lines.

7. The following table exhibits the results for the "basic" lines:—

Wave-length.	Elements.	Mean Widening.	Remarks.
*† 6064.70	Fe + Ti	0.5	
*† 6101.92	Ca + Li	0.7	
*† 6121.34	Ca + Co	0.8	
† 6154.41	Na + Fe	2.0	
6255.51	Fe + Ti	0.9	
* 6346.34	Ru + Ir	0.3	
*† 6392.87	Fe + Sb	0.6	
† 6407.38	Fe + Sr	0.5	
† 6438.35	Ca + Cd	1.2	
† 6449.29	Ca + Ba	1.2	
*† 6461.98	Fe + Ca	1.2	Bright in prominence June 28.

On the Proper Motion of Groombridge 1830.

By W. T. Lynn, B.A.

It is now nearly fifty years since the large proper motion of *Groombridge 1830* was detected by Argelander. In the *Monthly Notices* for June 1870 (vol. xxx., p. 203), I put together the results of the observations which had been obtained at the Royal Observatory, Greenwich, of this star, taking the places from the successive great catalogues from the twelve-year (epoch 1845) to the second seven-year (epoch 1864), which was then passing through the press under my own immediate superintendence. Perhaps it may be acceptable if I now complete this by adding the results from the catalogues (the nine-year for 1872, and the ten-year for 1880), which have been since published. It will be noticed that no fewer than 90 observations in R.A. and 100 in N.P.D. have been made at Greenwich of this remarkable

* Bright in chromosphere, Young.

† Resolved either by Liveing and Dewar, or by Fievez.

star, and that the interval between the adopted epochs of the first and last of all these catalogues amounts to 35 years.

Positions of Groombridge 1830.

Epoch.	R.A.			No. of Obs.	N.P.D.			No. of Obs.	Authority.
	^h	^m	^s		[°]	[']	["]		
1845	11	44	1.53	13	51	10	10.90	10	12-year catalogue.
1850	11	44	19.04	17	51	12	20.04	19	6-year catalogue.
1860	11	44	53.91	18	51	16	37.44	18*	7-year catalogue (1860).
1864	11	45	7.83	8	51	18	21.22	8	7-year catalogue (1864).
1872	11	45	35.68	26	51	21	47.05	31	9-year catalogue.
1880	11	46	3.53	8	51	25	13.92	14	10-year catalogue.

From these we obtain the following mean annual variations for the years comprised between each successive epoch :—

Years.	Ann. Var. in R.A.	Ann. Var. in N.P.D.
1845-1850	+ 3 ^s .502	+ 25 ["] .85
1850-1860	3.487	25.74
1860-1864	3.480	25.94
1864-1872	3.481	25.73
1872-1880	+ 3.481	+ 25.86

Deducting from these the annual precession, amounting to + 3^s.144 (diminishing to 3^s.138) in R.A., and + 20["].01 in N.P.D., the following will be the values of the proper motion deducible from these observations :—

Years.	Proper Motion in R.A.	Proper Motion in N.P.D.
1845-1850	+ 0 ^s .358	+ 5 ["] .82
1850-1860	0.344	5.73
1860-1864	0.338	5.93
1864-1872	0.341	5.72
1872-1880	+ 0.343	+ 5.85

Blackheath :
1890 January 29.

* By a misprint this appears as 8 in my former paper.

Observations of Comet 1888 (Barnard, Sept. 2), made at Sydney Observatory with the 11½-inch Equatorial and Filar Micrometer.

(Communicated by H. C. Russell, B.A., F.R.S., Government Astronomer.)

Date.	Sydney M.T.	Star.	Comp.	Comet - Star		Comet's Apparent		Log. $p\Delta$	
				Δ R.A.	Δ N.P.D.	R.A.	N.P.D.	for R.A.	for N.P.D.
1889, Aug. 13	h m s 7 20 43	1	10	m s +4 37.24	- 6 19.7	h m s 19 19 16.47	° ' '' 95 30 55.0	9.478 _n	0.635
19	8 0 49	2	10	-4 41.90	+10 56.8	19 4 45.77	96 25 22.1	9.184 _n	0.612

Mean Places of the Comparison Stars for 1889.0.

Star.	R.A. 1889.0.		Reduction.	N.P.D. 1889.0.		Reduction.	Authority.
	h m s	° ' ''		° ' ''	° ' ''		
1	19 14 37.13		+2.10	95 37 23.3		-8.6	Radcliffe 2nd Cat. 1844, Yarnall 8255.
2	19 9 25.62		+2.05	96 14 33.9		-8.6	Lalande 36137.

The foregoing late observations may perhaps be useful in checking the orbit of the comet; they were made by Mr. J. A. Pollock.

Sydney Observatory :
1889 December 31.